Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) ~~A stator for an electric motor, comprising:~~

An apparatus, comprising:

a) a vehicle which includes a steering assist system which is powered by an electric motor;

b) a stator within the electric motor, which comprises

~~a)~~ i) a radial array of 2N substantially identical teeth, definable as 1, 2, 3, to 2N;

~~b)~~ ii) N coils, one wound around each even tooth; and

~~c)~~ iii) no coil wound around any odd tooth,

wherein likelihood of phase-to-phase shorting is reduced, compared with an electric motor having different phases in a common slot, thereby (1) reducing vibration and (2) mitigating increased steering effort, both of which can accompany phase-to-phase shorting.

2. (Currently amended) ~~A stator for an electric motor, comprising:~~

An apparatus, comprising:

a) a vehicle which includes a steering assist system which is powered by an electric motor;

b) a stator within the electric motor, which comprises

~~a)~~ i) a first group of stator teeth, each

~~i)~~ A) acting as magnetic core for a single coil wound around it; and

~~ii)~~ B) carrying substantially all magnetic flux of the coil wound around it;

~~b)~~ ii) a second group of stator teeth, identical in structure to the first group, having no coils wound around them,

wherein likelihood of phase-to-phase shorting is reduced, compared with an electric motor having different phases in a common slot, thereby (1) reducing vibration and (2) mitigating increased steering effort, both of which can accompany phase-to-phase shorting.

3. (Currently Amended) The ~~stator~~ apparatus according to claim 2, wherein slots are present between adjacent teeth of said stator, and some slots contain no coils.

4. (Currently amended) ~~A stator for an electric motor, comprising:~~

An apparatus, comprising:

a) a vehicle which includes a steering assist system which is powered by an electric motor;

b) a stator within the electric motor, which comprises

~~a)~~ i) a radial array of stator teeth, separated by stator slots; and

~~b)~~ ii) phase coils encircling at least some stator teeth, wherein no slot contains coils from more than one phase, and any slot containing a coil is substantially fully occupied by said coil,

wherein likelihood of phase-to-phase shorting is reduced, compared with an electric motor having different phases in a common slot, thereby (1) reducing vibration and (2) mitigating increased steering effort, both of which can accompany phase-to-phase shorting.

5. (Currently Amended) The ~~stator~~ apparatus according to claim 4, wherein the radial array of stator teeth comprises at least two teeth.

6. (Currently amended) An apparatus, comprising:

a) a vehicle which includes a steering assist system which is powered by an electric motor;

b) a stator within the electric motor, which comprises

~~a)~~ i) a stator ~~for an electric motor,~~ comprising coil slots; and

~~b)~~ ii) in any slot, a coil and no coils from more than a single phase, and full occupancy of the slot by the coil,

wherein likelihood of phase-to-phase shorting is reduced, compared with an electric motor having different phases in a common slot, thereby (1) reducing vibration and (2) mitigating increased steering effort, both of which can accompany phase-to-phase shorting.

7. (Currently amended) An apparatus, comprising:

a) a vehicle which includes a steering assist system which is powered by an electric motor;

~~a)~~ b) a stator for ~~an~~ the electric motor, comprising coil slots;

~~b)~~ c) a rotor in the electric motor;

~~c)~~ d) coils in respective slots, which fully occupy the respective slots, wherein all currents in any slot are in-phase,

wherein likelihood of phase-to-phase shorting is reduced, compared with an electric motor having different phases in a common slot, thereby (1) reducing vibration and (2) mitigating increased steering effort, both of which can accompany phase-to-phase shorting.

8. (Previously Presented) The apparatus according to claim 7, wherein no currents in any slot have different phases.

9. - 11. (Cancelled)

12. (Currently amended)

An apparatus, comprising:

a) a vehicle which includes a steering assist system which is powered by an electric motor;

b) a stator within the electric motor, which comprises

~~A stator for an electric motor, comprising:~~

~~a)~~ i) an outer rim;

~~b)~~ ii) stator teeth extending radially inward from the rim;

~~c)~~ iii) breaks in the stator, which allow

~~i)~~ A) any selected individual stator tooth to be removed from the stator; and

~~ii)~~ B) a pre-formed coil to be mounted onto the selected stator tooth.

13. (Currently amended) A stator ~~for~~ within an electric motor in a steering assist system in a vehicle, comprising:

a) a radial array of stator teeth, with a stator slot present between adjacent pairs of teeth;

b) a rim surrounding the teeth; and

c) breaks in the rim, teeth, or both, which allow

i) any selected individual teeth to be separated from the stator and

ii) a pre-formed coil to be inserted onto selected individual teeth,

wherein no two coils touch each other, thereby reducing likelihood of phase-to-phase shorting, compared with an electric motor having different phases in a common slot, thereby (1) reducing vibration and (2) mitigating increased steering effort, both of which can accompany phase-to-phase shorting.

14. (Previously Presented) The stator according to claim 13, wherein structural configuration of the removed stator teeth does not require deformation of the pre-formed coil during mounting.

15. (Cancelled)

16. (Currently amended) A collection of parts for constructing a stator for an electric motor, comprising:

a) a plurality of pre-formed coils;

b) a first set of stator teeth having radially outer ends which fit into the pre-formed coils; ~~and~~

c) a second set of stator teeth, each having a segment of a rim mounted thereon; and

d) an apparatus which incorporates the stator and the electric motor into a steering assist system in a vehicle,

wherein no two coils touch each other, thereby reducing likelihood of phase-to-phase shorting, compared with an electric motor having different phases in a common slot, thereby (1) reducing vibration and (2) mitigating increased steering effort, both of which can accompany phase-to-phase shorting.

17. (Previously Presented) The collection of parts according to claim 16, wherein a radial array of stator teeth connected to an outer rim is generated when

i) the first set of stator teeth is positioned in odd-numbered sectors of a circle, and

ii) the second set of stator teeth is positioned in even-numbered sectors of the circle.

18. (Previously Presented) The collection of parts according to claim 17, wherein the segments of the rim collectively form a circular periphery of the stator.

19. (Previously Presented) The collection of parts according to claim 17, wherein the segments of the rim, together with radially outer sections of stator teeth in the first set, collectively form a circular periphery of the stator.

20. (Currently amended) A stator ~~for~~ within an electric motor in a steering assist system in a vehicle, comprising:

a) a radial array of stator teeth, extending inwardly from a circumferential rim;

b) breaks in the rim, teeth, or both, which allow

i) any selected individual teeth to be separated from the stator and

ii) a pre-formed coil to be inserted onto selected individual teeth,

wherein no two coils touch each other, thereby reducing likelihood of phase-to-phase shorting, compared with an electric motor having different phases in a common slot, thereby (1) reducing vibration and (2) mitigating increased steering effort, both of which can accompany phase-to-phase shorting.

21. (Previously Presented) The stator according to claim 20, wherein parts of the rim are connected to some teeth when removed, preventing insertion of pre-formed coils onto such teeth.

22. - 24. (Cancelled)

25. - 30 (Withdrawn)

31. (Previously Presented) The apparatus according to claim 1, wherein the coils provide multiple phases.

32. - 37. (Withdrawn)